

Application No. 09/942,790

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In the claims:

This listing of claims will replace all prior versions and listings of claims in the application:

- 1 1. (currently amended) A telecommunications system for connecting to a network and for
2 routing data messages between the network and subscriber terminals of the
3 telecommunications system, the subscriber terminals being connectable to a central
4 terminal of the telecommunications system via a transmission medium, the
5 telecommunications system providing a number of communication channels arranged to
6 utilise the transmission medium for transmission of data between the central terminal and
7 the subscriber terminals, the telecommunications system comprising:
- 8 a transmitter within the central terminal for sending a data message destined for a
9 particular subscriber terminal over at least one of the communication channels as a
10 number of data blocks; and
- 11 a frame generator within the central terminal for generating a number of frames to
12 represent each data block, each frame having a header portion and a data portion, the
13 header portion being arranged to be transmitted in a fixed format chosen to facilitate
14 reception of the header portion by each subscriber terminal and being arranged to include
15 a number of control fields for providing information about the data portion, said
16 information comprising at least an indication of the subscriber terminal for which the
17 corresponding data portion of the frame is destined, the data portion being arranged to be
18 transmitted in a variable format selected based on predetermined criteria relevant to the
19 particular subscriber terminal to which the data portion is destined;
- 20 wherein the predetermined criteria comprises an indication of the signal-to-noise
21 ratio (SNR) of signals received by the destination subscriber terminal from the central
22 terminal, and if there are a plurality of formats selectable as the variable format given the
23 indicated signal-to-noise ratio and the amount of data to be sent in the data block, then
24 the frame generator is arranged to select from those plurality of formats the format
25 requiring lowest transmission power.

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1 2. (currently amended) A telecommunications system as claimed in claim 10 [1], wherein
2 the predetermined criteria comprises an indication of the signal-to-noise ratio (SNR) of
3 signals received by the destination subscriber terminal from the central terminal.

1 3. (original) A telecommunications system as claimed in claim 2, wherein if there are a
2 plurality of formats selectable as the variable format given the indicated signal-to-noise
3 ratio and the amount of data to be sent in the data block, then the frame generator is
4 arranged to select from those plurality of formats the format requiring lowest
5 transmission power.

1 4. (original) A telecommunications system as claimed in claim 1, wherein the variable
2 format is defined by a number of parameters, a first parameter being a channel coding to
3 be applied to the data in the corresponding data portion.

1 5. (original) A telecommunications system as claimed in claim 4, wherein a second
2 parameter is a modulation type to be applied to the data in the corresponding data portion.

1 6. (original) A telecommunications system as claimed in claim 5, wherein a third
2 parameter is a symbol rate for the data in the corresponding data portion.

1 7. (original) A telecommunications system as claimed in claim 4, wherein the parameters
2 defining the variable format used for the data portion are identified in one or more control
3 fields of the corresponding header portion.

1 8. (original) A telecommunications system as claimed in claim 1, wherein the fixed
2 format used for the header portion employs a relatively low symbol rate.

1 9. (original) A telecommunications system as claimed in claim 1, wherein the fixed
2 format used for the header portion employs no channel coding.

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1 10. (currently amended) A telecommunications system for connecting to a network and
2 for routing data messages between the network and subscriber terminals of the
3 telecommunications system, the subscriber terminals being connectable to a central
4 terminal of the telecommunications system via a transmission medium, the
5 telecommunications system providing a number of communication channels arranged to
6 utilise the transmission medium for transmission of data between the central terminal and
7 the subscriber terminals, the telecommunications system comprising:
8 a transmitter within the central terminal for sending a data message destined for a
9 particular subscriber terminal over at least one of the communication channels as a
10 number of data blocks; and
11 a frame generator within the central terminal for generating a number of frames to
12 represent each data block, each frame having a header portion and a data portion, the
13 header portion being arranged to be transmitted in a fixed format chosen to facilitate
14 reception of the header portion by each subscriber terminal and being arranged to include
15 a number of control fields for providing information about the data portion, said
16 information comprising at least an indication of the subscriber terminal for which the
17 corresponding data portion of the frame is destined, the data portion being arranged to be
18 transmitted in a variable format selected based on predetermined criteria relevant to the
19 particular subscriber terminal to which the data portion is destined A telecommunications
20 system as claimed in claim 1, wherein each subscriber terminal comprises a first number
21 of channel monitors to enable each of the communication channels to be monitored,
22 whereby each subscriber terminal can read the header portion of each frame irrespective
23 of which communication channel that frame is transmitted on.

1 11. (previously presented) A telecommunications system as claimed in claim 10, wherein
2 comprises a second number of processors for processing data portions destined for that
3 subscriber terminal based on information about the variable format identified in the
4 control fields of the corresponding header portion, and the channel monitors being
5 arranged to identify to the processors those frames containing data portions destined for
6 that subscriber terminal.

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1 12. (original) A telecommunications system as claimed in claim 11, wherein the second
2 number of processors is less than the first number of channel monitors, whereby at any
3 point in time the header portions of the frames on each of the communication channels
4 can be read, but only the second number of data portions can be processed by a particular
5 subscriber terminal.

1 13. (currently amended) A telecommunications system for connecting to a network and
2 for routing data messages between the network and subscriber terminals of the
3 telecommunications system, the subscriber terminals being connectable to a central
4 terminal of the telecommunications system via a transmission medium, the
5 telecommunications system providing a number of communication channels arranged to
6 utilise the transmission medium for transmission of data between the central terminal and
7 the subscriber terminals, the telecommunications system comprising:

8 a transmitter within the central terminal for sending a data message destined for a
9 particular subscriber terminal over at least one of the communication channels as a
10 number of data blocks; and

11 a frame generator within the central terminal for generating a number of frames to
12 represent each data block, each frame having a header portion and a data portion, the
13 header portion being arranged to be transmitted in a fixed format chosen to facilitate
14 reception of the header portion by each subscriber terminal and being arranged to include
15 a number of control fields for providing information about the data portion, said
16 information comprising at least an indication of the subscriber terminal for which the
17 corresponding data portion of the frame is destined, the data portion being arranged to be
18 transmitted in a variable format selected based on predetermined criteria relevant to the
19 particular subscriber terminal to which the data portion is destined

20 ~~A telecommunications system as claimed in claim 1~~, wherein the frame generator is also provided in at least one
21 of the subscriber terminals to enable frames to be generated for data blocks to be
22 transmitted from the subscriber terminal to the central terminal, the subscriber terminal
23 being arranged to issue to the central terminal over the transmission medium a request
24 signal when it has data to send to the central terminal, the central terminal being

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25 responsive to the request signal to grant access to the subscriber terminal on a
26 communication channel selected by the central terminal.

1 14. (original) A telecommunications system as claimed in claim 13, wherein the central
2 terminal is arranged to grant access by including in a control field of a frame issued by
3 the central terminal on the selected communication channel a grant signal identifying the
4 subscriber terminal.

1 15. (original) A telecommunications system as claimed in claim 14, wherein the grant
2 signal grants the subscriber terminal access to the selected communication channel to
3 send one frame, the subscriber terminal being arranged to continue asserting the request
4 signal until a grant signal has been received for the final frame that the subscriber
5 terminal has to send.

1 16. (original) A telecommunications system as claimed in claim 1, wherein the header
2 portion includes a power control field for identifying a power control signal to be used by
3 the recipient of the frame to control the power of signals subsequently issued by that
4 recipient.

1 17. (original) A telecommunications system as claimed in claim 1, wherein the header
2 portion includes a code synchronisation control field for identifying a code
3 synchronisation signal to be used by the recipient of the frame to control the code
4 synchronisation of signals subsequently issued by that recipient.

1 18. (original) A telecommunications system as claimed in claim 1, wherein the header
2 portion includes a field containing a predetermined training sequence used by the
3 recipient of the frame to determine the phase of a carrier signal.

1 19. (original) A telecommunications system as claimed in claim 1, wherein the
2 transmission medium is a radio resource facilitating wireless communications between
3 the central terminal and the subscriber terminals.

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1 20. (original) A telecommunications system as claimed in claim 1, wherein the
2 communication channels are orthogonal channels defined using CDMA.

1 21. (currently amended) A method of operating a telecommunications system to route
2 data messages between a network and subscriber terminals of the telecommunications
3 system, the subscriber terminals being connectable to a central terminal of the
4 telecommunications system via a transmission medium, the telecommunications system
5 providing a number of communication channels arranged to utilise the transmission
6 medium for transmission of data between the central terminal and the subscriber
7 terminals, the method comprising the steps of:

8 transmitting the data message destined for a particular subscriber terminal from
9 the central terminal over at least one of the communication channels as a number of data
10 blocks; and

11 generating a number of frames to represent each data block to be transmitted, each
12 frame having a header portion and a data portion, the header portion being arranged to be
13 transmitted in a fixed format chosen to facilitate reception of the header portion by each
14 subscriber terminal and being arranged to include a number of control fields for
15 providing information about the data portion, said information comprising at least an
16 indication of the subscriber terminal for which the corresponding data portion of the
17 frame is destined, the data portion being arranged to be transmitted in a variable format
18 selected based on predetermined criteria relevant to the particular subscriber terminal to
19 which the data portion is destined;

20 wherein the predetermined criteria comprises an indication of the signal-to-noise
21 ratio (SNR) of signals received by the particular subscriber terminal from the central
22 terminal, and if there are a plurality of formats selectable as the variable format given the
23 indicated signal-to-noise ratio and the amount of data to be sent in the data block, then
24 selecting in the frame generator from those plurality of formats the format requiring
25 lowest transmission power.

1 22. (currently amended) A computer program stored or carried on a machine readable
2 medium and operable upon execution to configure a telecommunications system to

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~~perform a method as claimed in claim 21~~ route data messages between a network and subscriber terminals of the telecommunications system, the subscriber terminals being connectable to a central terminal of the telecommunications system via a transmission medium, the telecommunications system providing a number of communication channels arranged to utilise the transmission medium for transmission of data between the central terminal and the subscriber terminals, according to a method comprising the steps of:

transmitting the data message destined for a particular subscriber terminal from the central terminal over at least one of the communication channels as a number of data blocks; and

generating a number of frames to represent each data block to be transmitted, each frame having a header portion and a data portion, the header portion being arranged to be transmitted in a fixed format chosen to facilitate reception of the header portion by each subscriber terminal and being arranged to include a number of control fields for providing information about the data portion, said information comprising at least an indication of the subscriber terminal for which the corresponding data portion of the frame is destined, the data portion being arranged to be transmitted in a variable format selected based on predetermined criteria relevant to the particular subscriber terminal to which the data portion is destined;

wherein the predetermined criteria comprises an indication of the signal-to-noise ratio (SNR) of signals received by the particular subscriber terminal from the central terminal, and if there are a plurality of formats selectable as the variable format given the indicated signal-to-noise ratio and the amount of data to be sent in the data block, then selecting in the frame generator from those plurality of formats the format requiring lowest transmission power.

Cancel claim 23.

24. (currently amended) A frame generator for a telecommunications system ~~as claimed in claim 1~~ for connecting to a network and for routing data messages between the network and subscriber terminals of the telecommunications system, the subscriber terminals being connectable to a central terminal of the telecommunications system via a

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5 transmission medium, the telecommunications system providing a number of
6 communication channels arranged to utilise the transmission medium for transmission of
7 data between the central terminal and the subscriber terminals, and including a
8 transmitter within the central terminal for sending a data message destined for a particular
9 subscriber terminal over at least one of the communication channels as a number of data
10 blocks, the frame generator comprising: the frame generator comprising resources being
11 arranged to generate a number of frames to represent a data block to be transmitted over
12 the transmission medium, each frame having a header portion and a data portion, the
13 header portion being arranged to be transmitted in a fixed format chosen to facilitate
14 reception of the header portion by each subscriber terminal and being arranged to include
15 a number of control fields for providing information about the data portion, said
16 information comprising at least an indication of the subscriber terminal for which the
17 corresponding data portion of the frame is destined, the data portion being arranged to be
18 transmitted in a variable format selected based on predetermined criteria relevant to the
19 particular subscriber terminal to which the data portion is destined; wherein the
20 predetermined criteria comprises an indication of the signal-to-noise ratio (SNR) of
21 signals received by the destination subscriber terminal from the central terminal, and if
22 there are a plurality of formats selectable as the variable format given the indicated
23 signal-to-noise ratio and the amount of data to be sent in the data block, then the frame
24 generator is arranged to select from those plurality of formats the format requiring lowest
25 transmission power.

1 25. (currently amended) A transmission signal produced by a frame generator and stored
2 or carried on a machine readable medium, for a telecommunications system for
3 connecting to a network and for routing data messages between the network and
4 subscriber terminals of the telecommunications system, the subscriber terminals being
5 connectable to a central terminal of the telecommunications system via a transmission
6 medium, the telecommunications system providing a number of communication channels
7 arranged to utilise the transmission medium for transmission of data between the central
8 terminal and the subscriber terminals, and including a transmitter within the central
9 terminal for sending a data message destined for a particular subscriber terminal over at

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10 least one of the communication channels as a number of data blocks, the transmission
11 signal comprising at least one frame, the frame having a header portion and a data
12 portion, the header portion being arranged to be transmitted in a fixed format chosen to
13 facilitate reception of the header portion by a plurality of receivers and being arranged to
14 include a number of control fields for providing information about the data portion, said
15 information comprising at least an indication of the a destination subscriber terminal for
16 which the corresponding data portion of the frame is destined, the data portion being
17 arranged to be transmitted in a variable format selected from plurality of variable formats,
18 wherein the variable format of the plurality of variable formats is selectable selected
19 based on predetermined criteria relevant to a particular receiver to which the data portion
20 is destined; wherein the predetermined criteria comprises an indication of the signal-to-
21 noise ratio (SNR) of signals received by the destination subscriber terminal from another
22 terminal, so that a frame generator arranged to select from those plurality of formats the
23 format may select the variable format requiring lowest transmission power given the
24 indicated signal-to-noise ratio and the amount of data to be sent in the data block.

1 Cancel claim 26.

1 27. (new) A method of operating a telecommunications system to route data messages
2 between a network and subscriber terminals of the telecommunications system, the
3 subscriber terminals being connectable to a central terminal of the telecommunications
4 system via a transmission medium, the telecommunications system providing a number
5 of communication channels arranged to utilise the transmission medium for transmission
6 of data between the central terminal and the subscriber terminals, the method comprising
7 the steps of:
8 transmitting the data message destined for a particular subscriber terminal from
9 the central terminal over at least one of the communication channels as a number of data
10 blocks;
11 generating a number of frames to represent each data block to be transmitted, each
12 frame having a header portion and a data portion, the header portion being arranged to be
13 transmitted in a fixed format chosen to facilitate reception of the header portion by each

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14 subscriber terminal and being arranged to include a number of control fields for
15 providing information about the data portion, said information comprising at least an
16 indication of the subscriber terminal for which the corresponding data portion of the
17 frame is destined, the data portion being arranged to be transmitted in a variable format
18 selected based on predetermined criteria relevant to the particular subscriber terminal to
19 which the data portion is destined; and
20 monitoring at each subscriber terminal each of the communication channels,
21 whereby each subscriber terminal can read the header portion of each frame irrespective
22 of which communication channel that frame is transmitted on.

1 28. (new) A method of operating a telecommunications system to route data messages
2 between a network and subscriber terminals of the telecommunications system, the
3 subscriber terminals being connectable to a central terminal of the telecommunications
4 system via a transmission medium, the telecommunications system providing a number
5 of communication channels arranged to utilise the transmission medium for transmission
6 of data between the central terminal and the subscriber terminals, the method comprising
7 the steps of:
8 transmitting the data message destined for a particular subscriber terminal from
9 the central terminal over at least one of the communication channels as a number of data
10 blocks;
11 generating a number of frames to represent each data block to be transmitted, each
12 frame having a header portion and a data portion, the header portion being arranged to be
13 transmitted in a fixed format chosen to facilitate reception of the header portion by each
14 subscriber terminal and being arranged to include a number of control fields for
15 providing information about the data portion, said information comprising at least an
16 indication of the subscriber terminal for which the corresponding data portion of the
17 frame is destined, the data portion being arranged to be transmitted in a variable format
18 selected based on predetermined criteria relevant to the particular subscriber terminal to
19 which the data portion is destined; and
20 generating frames in a frame generator in the subscriber terminal for data blocks
21 to be transmitted from the subscriber terminal to the central terminal, issuing from the

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22 subscriber terminal to the central terminal over the transmission medium a request signal
23 when the subscriber terminal has data to send to the central terminal, the central terminal
24 being responsive to the request signal to grant access to the subscriber terminal on a
25 communication channel selected by the central terminal.

1 29. (new) A computer program stored or carried on a machine readable medium and
2 operable upon execution to configure a telecommunications system to route data
3 messages between a network and subscriber terminals of the telecommunications system,
4 the subscriber terminals being connectable to a central terminal of the
5 telecommunications system via a transmission medium, the telecommunications system
6 providing a number of communication channels arranged to utilise the transmission
7 medium for transmission of data between the central terminal and the subscriber
8 terminals, according to a method comprising the steps of:

9 transmitting the data message destined for a particular subscriber terminal from
10 the central terminal over at least one of the communication channels as a number of data
11 blocks;

12 generating a number of frames to represent each data block to be transmitted, each
13 frame having a header portion and a data portion, the header portion being arranged to be
14 transmitted in a fixed format chosen to facilitate reception of the header portion by each